

CURRENTLY PENDING CLAIMS

Claims 1-29 (Canceled)

30. (Currently amended) A machine readable storage medium comprising a program containing a set of instructions for causing a cell screening system to execute procedures for detecting the distribution of one or more cellular macromolecule of interest between a cell cytoplasm and a plasma membrane in individual cells comprising:

a) scanning multiple cells in an array of locations which contain multiple cells to obtain fluorescent signals from fluorescent reporter molecules in the cells, wherein the cells possess a plurality of fluorescent reporter molecules, wherein the plurality of fluorescent reporter molecules comprises one or more fluorescent reporter molecules to report on

(i) one or more cellular macromolecule of interest;

(ii) the cell cytoplasm and

(iii) the plasma membrane;

b) identifying individual cells from the fluorescent signals from the plurality of fluorescent reporter molecules;

c) creating a plasma membrane mask and a cell cytoplasm mask **in the individual cells** from the **fluorescent signals from the** plurality of fluorescent reporter molecules;

d) determining an intensity of the fluorescent signals from the fluorescent reporter molecules that report on the one or more cellular macromolecule of interest within the plasma membrane mask and the cell cytoplasm mask in the individual cells in response to contacting the cells with a test stimulus;

e) **determining a first translocation quotient between the cell cytoplasm and the plasma membrane for the cellular macromolecule of interest by calculating a ratio of [comparing] the intensity of the fluorescent signals from the fluorescent reporter molecules that report on the one or more cellular macromolecule of interest within the plasma membrane mask and the intensity of the fluorescent signals from the fluorescent reporter molecules that report on the one or more cellular macromolecule of interest within the cell cytoplasm mask in the individual cells in response to contacting the cells at a first time point with a test stimulus; [to:]**

(f) comparing the first translocation quotient to:

i) one or more second translocation quotients for the cellular macromolecule of interest between the cell cytoplasm and the plasma membrane, which are determined by calculating a ratio of an intensity of fluorescent signals from the fluorescent reporter molecules that report on the one or more cellular macromolecule of interest within the plasma membrane mask and an intensity of fluorescent signals from the fluorescent reporter molecules that report on the one or more cellular macromolecule of interest within the cell cytoplasm mask in the individual cells in response to contacting the cells with the test stimulus from at least a second time point; and/or

ii) one or more third translocation quotients for the cellular macromolecule of interest between the cell cytoplasm and the plasma membrane, which are determined by calculating a ratio of an intensity of fluorescent signals from the fluorescent reporter molecules that report on the one or more cellular macromolecule of interest within the plasma membrane mask and an intensity of fluorescent signals from the fluorescent reporter molecules that report on the one or more cellular macromolecule of interest within the cell cytoplasm mask in the individual cells that have not been contacted with the test stimulus; and

g) [f] determining the effect of the test stimulus on the distribution of the one or more cellular macromolecule of interest between the plasma membrane and the cell cytoplasm in the individual cells as a function of the first translocation quotient, the one or more second translocation quotients, and/or the one or more third translocation quotients [intensity of the fluorescent signals from the fluorescent reporter molecules that report on the one or more cellular macromolecule of interest within the plasma membrane mask and the cell cytoplasm mask in the individual cells in response to the test stimulus].

Claims 31-43 (Canceled)

44. (Previously presented) The machine readable storage medium of claim 30, wherein the identifying of the individual cells comprises identifying the nucleus of the individual cells.

45-60. (Canceled)

61. (Previously presented) The machine readable storage medium of claim 30, wherein the cellular macromolecule of interest is a protein.

62. (Previously presented) The machine readable storage medium of claim 30, wherein the fluorescent reporter molecules that report on the one or more cellular macromolecule of interest comprises a fluorescently labeled antibody.

63. (Previously presented) The machine readable storage medium of claim 30, wherein the multiple cells are fixed cells.

64. (Currently amended) The machine readable storage medium of claim 30, wherein the **first translocation quotient is compared to the one or more second translocation quotients** [~~intensity of the fluorescent signals from the fluorescent reporter molecules that report on the one or more cellular macromolecule of interest within the plasma membrane mask and the cell cytoplasm mask in the individual cells in response to contacting the cells at the first time point with the test stimulus is compared to the intensity of fluorescent signals of the fluorescent reporter molecules that report on the one or more cellular macromolecule of interest within the plasma membrane mask and the cell cytoplasm mask in the individual cells in response to contacting the cells with the test stimulus from at least the second time point~~].

65. (Previously presented) The machine readable storage medium of claim 64, wherein the multiple cells are live cells.

66. (New) The machine readable storage medium of claim 30 wherein the first translocation quotient is compared to the one or more third translocation quotients.